Patent claims:

1. A method of detecting multipath components in time-varying fading radio channels (3, 4, 6) in a digital wireless communications system in which individual multipath components of a signal transmitted through a channel are received with individual delays (τ_a, τ_b, τ_c) within a range of possible delay values, and in which signals transmitted through a given channel comprise an identification code identifying that channel, the method comprising the steps of:

- calculating repetitively for each of a number of known channels a delay profile indicating a magnitude (Y) for each of a number of individual delay values in a search window constituting a subset of said range of possible delay values and being positioned based on at least one previously calculated delay profile for the corresponding channel;
- estimating from said delay profiles the delays of multipath components for each known channel;
- calculating from said delay profiles a signal strength indicator for each known channel; and
- searching at regular time intervals for new multipath components that are not already estimated from one of said delay profiles,

characterized in that the method further comprises the steps of:

- comparing, when a new multipath component is found, the identification code of the new multipath component to the identification codes of said known channels; and
- calculating, if the identification code of the new multipath component is identical to the identification code of one of the known channels, a delay profile and a corresponding signal strength indicator for a transposed window obtained by transposing the search window of that known channel to include said new multipath component.

2. A method according to claim 1, c h a r a c t e r i z e d in that the method further comprises the step of replacing the signal strength indicator calculated for that known channel by the signal strength indicator calculated for the transposed window.

3. A method according to claim 2, c h a r a c t e r i z e d in that the method further comprises the step of replacing the search window for that known channel by the transposed window.

4. A method according to claim 1, c h a r a c t e r i z e d in that the method further comprises the steps of:

- comparing the signal strength indicator calculated for that known channel to the signal strength indicator calculated for the transposed window, and
- replacing, if the signal strength indicator calculated for the transposed window is larger than the signal strength indicator calculated for that known channel multiplied by a factor, the signal strength indicator for that known channel by the signal strength indicator for the transposed window.

5. A method according to claim 4, c h a r a c t e r i z e d in that said factor equals one.

6. A method according to claim 4 or 5, c h a r a c t e r i z e d in that the method further comprises the step of replacing, if the signal strength indicator for that known channel is replaced by the signal strength indicator for the transposed window, the search window for that known channel by the transposed window.

7. A method according to any one of claims 1 to 6, c h a r a c t e r - i z e d in that the method further comprises the steps of:

- calculating a signal strength indicator for the transposed window a number of times;

- calculating a filtered signal strength indicator from said number of calculated signal strength indicators; and
- using said filtered signal strength indicator as the signal strength indicator calculated for the transposed window.

8. A method according to any one of claims 1 to 7, characterized in that the method further comprises the steps of:

- calculating a center of gravity for said previously calculated delay profile; and
- positioning the search window (W_0) around said calculated center of gravity.

9. A method according to any one of claims 1 to 8, characterized in that multipath components calculated for said transposed window are considered as already estimated in said step of searching at regular time intervals for new multipath components that are not already estimated from one of said delay profiles.

10. A method according to any one of claims 1 to 9, characterized in that said digital wireless communications system is a Wideband Code Division Multiple Access system.

11. A method according to claim 10, characterized in that said identification code is a scrambling code for a Common Pilot Channel in said Wideband Code Division Multiple Access system.

12. A receiver having means (11, 12, 13, 14) for detecting multipath components in time-varying fading radio channels (3, 4, 6) in a digital wireless communications system in which individual multipath components of a signal transmitted through a channel are received with individual delays (τ_a, τ_b, τ_c) within a range of possible delay values, and in which signals transmitted through a given channel comprise an identification code identifying that channel, the receiver being adapted to:

- calculate repetitively for each of a number of known channels a delay profile indicating a magnitude (Y) for each of a number of individual delay values in a search window constituting a subset of said range of possible delay values and being positioned based on at least one previously calculated delay profile for the corresponding channel;
- estimate from said delay profiles the delays of multipath components for each known channel;
- calculate from said delay profiles a signal strength indicator for each known channel; and
- search at regular time intervals for new multipath components that are not already estimated from one of said delay profiles,

c h a r a c t e r i z e d in that the receiver is further adapted to:

- compare, when a new multipath component is found, the identification code of the new multipath component to the identification codes of said known channels; and
- calculate, if the identification code of the new multipath component is identical to the identification code of one of the known channels, a delay profile and a corresponding signal strength indicator for a transposed window obtained by transposing the search window of that known channel to include said new multipath component.

13. A receiver according to claim 12, c h a r a c t e r i z e d in that the receiver is further adapted to replace the signal strength indicator calculated for that known channel by the signal strength indicator calculated for the transposed window.

14. A receiver according to claim 13, c h a r a c t e r i z e d in that the receiver is further adapted to replace the search window for that known channel by the transposed window.

15. A receiver according to claim 12, c h a r a c t e r i z e d in that the receiver is further adapted to:

- compare the signal strength indicator calculated for that known channel to the signal strength indicator calculated for the transposed window, and
- replace, if the signal strength indicator calculated for the transposed window is larger than the signal strength indicator calculated for that known channel multiplied by a factor, the signal strength indicator for that known channel by the signal strength indicator for the transposed window.

16. A receiver according to claim 15, c h a r a c t e r i z e d in that said factor equals one.

17. A receiver according to claim 15 or 16, c h a r a c t e r i z e d in that the receiver is further adapted to replace, if the signal strength indicator for that known channel is replaced by the signal strength indicator for the transposed window, the search window for that known channel by the transposed window.

18. A receiver according to any one of claims 12 to 17, c h a r a c t e r i z e d in that the receiver is further adapted to:

- calculate a signal strength indicator for the transposed window a number of times;
- calculate a filtered signal strength indicator from said number of calculated signal strength indicators; and
- use said filtered signal strength indicator as the signal strength indicator calculated for the transposed window.

19. A receiver according to any one of claims 12 to 18, c h a r a c t e r i z e d in that the receiver is further adapted to:

- calculate a center of gravity for said previously calculated delay profile; and
- position the search window (W_0) around said calculated center of gravity.

20. A receiver according to any one of claims 12 to 19, c h a r a c - t e r i z e d in that the receiver is further adapted to consider multipath components calculated for said transposed window as already estimated when searching at regular time intervals for new multipath components that are not already estimated from one of said delay profiles.

21. A receiver according to any one of claims 12 to 20, c h a r a c - t e r i z e d in that said digital wireless communications system is a Wideband Code Division Multiple Access system.

22. A receiver according to claim 21, c h a r a c t e r i z e d in that said identification code is a scrambling code for a Common Pilot Channel in said Wideband Code Division Multiple Access system.

23. A computer program comprising program code means for performing the steps of any one of the claims 1 to 11 when said computer program is run on a computer.

24. A computer readable medium having stored thereon program code means for performing the method of any one of the claims 1 to 11 when said program code means is run on a computer.